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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/574,055	04/06/2007	Robert Puskas	31469-708.831	9397

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WILSON, SONSINI, GOODRICH & ROSATI  
650 PAGE MILL ROAD  
PALO ALTO, CA 94304-1050

EXAMINER
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GEISEL, KARA E

ART UNIT	PAPER NUMBER
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2877

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11/24/2009

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/574,055	<b>Applicant(s)</b> PUSKAS, ROBERT	
	<b>Examiner</b> KARA E. GEISEL	<b>Art Unit</b> 2877	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 06 April 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 March 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>0308, 0408</u> .  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Information Disclosure Statement***

The information disclosure statements filed March 25<sup>th</sup>, 2008 and April 18<sup>th</sup>, 2008 have been considered by the examiner.

### ***Drawings***

The drawings are objected to because figs. 3-8 and 10-12 are generally of a poor quality, with undefined lines and areas that are hard to read. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 8 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In regards to claim 8, it is disclosed that the third filter is applied before cross-correlating the first and second electromagnetic signals. However, claim 1, from which this claim depends, discloses that the third filter is applied to the cross-correlation events, which appears to imply that the cross-correlation must be done **prior** to the third filter being applied, and not after. Clarification is required.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-15 and 19-22 are rejected under 35 U.S.C. 102(b) as being anticipated by Ito et al. (USPN 5,760,900).

In regards to claim 1, Ito discloses a method for enhancing the analysis of particle detection (via figs. 2 and 4) comprising: measuring a first electromagnetic radiation signal provided by a particle within a first interrogation volume (first and third intensity peaks in fig. 4E-F) and optionally applying a first analytical filter to the first electromagnetic radiation signal (fig. 4C) and measuring a second electromagnetic radiation signal emitted by the particle in a second interrogation volume (second and fourth intensity peaks in fig. 4E-F) and optionally applying a second analytical filter to the second electromagnetic radiation signal (fig. 4D); comparing by cross-correlation the electromagnetic radiation signal emitted by the particle within the first interrogation volume to the electromagnetic radiation signal emitted by the particle within the second interrogation volume (by comparing fig. 4A to fig. 4B, the light from a first particle, or the first intensity peaks of the respective wave forms, can be distinguished from the light from a second particle, or the second intensity peaks of the respective waveforms); and further applying a third analytical filter to the cross-correlation events; thereby enhancing the analysis of the particle detection (column 9, lines 9-32).

In regards to claim 2, one of or both the first analytical filter and the second analytical filter are applied (figs. 4C-D).

In regards to claim 3, both the first analytical filter and the second analytical filter are applied, and wherein the first analytical filter and the second analytical filter are the same analytical filter (both timing filters figs. 4C-D).

In regards to claim 4, the first and second analytical filters are selected from the group consisting of signals that are greater than a predetermined threshold level, signals within a predetermined number of adjacent time segments, and a combination thereof (figs. 4C-D).

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In regards to claim 5, applying the third analytical filter comprises detecting a particle characteristic selected from the group consisting of emission intensity, burst size, burst duration, fluorescence lifetime, fluorescence polarization, and any combination thereof (column 9, lines 9-32; once error data is cancelled the emission intensities of each label are determined; column 12, line 46 - column 13, line 20).

In regards to claim 6, the particle characteristic is provided by one of an intrinsic parameter of the particle or an extrinsic parameter of the particle (column 14, lines 47-52).

In regards to claim 7, the extrinsic parameter is provided by marking the particle with at least one label selected from the group consisting of a dye tag, a light-scattering tag, and any combination thereof (column 14, lines 47-52).

In regards to claim 8, the first analytical filter, the second analytical filter and the third analytical filter are applied before cross-correlating the first electromagnetic radiation signal and second electromagnetic radiation signal (figs. 4A-F and column 9, lines 9-32, first and second timing filters, and third error data cancelling filter is applied before the intensities of each dye for each particle is determined by cross-correlating the waveforms 4A-B).

In regards to claim 9, the first and second interrogation volumes (1a-b) are in electromagnetic communication with at least one excitation source (2-3) selected from the group consisting of a light-emitting diode, a continuous wave laser, and a pulsed laser (column 5, lines 31-45).

In regards to claims 10-12, the particle selected to be measured can be any desired by the user (column 3, lines 25-40).

In regards to claims 13-15, the target particle is one of a population of different particles and the target particle is moved through the first interrogation volume and through the second interrogation volume with the population of different particles at a uniform velocity by a force selected from the group

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consisting of positive pressure, negative pressure, gravity, surface tension, inertial force, centrifugal force, and any combination thereof (column 1, lines 23-50).

In regards to claim 19, the emitted electromagnetic radiation signal is selected from the group consisting of stimulated emission, fluorescence, elastic light scattering, inelastic light scattering, and any combination thereof (column 3, lines 30-33).

In regards to claim 20, the emitted electromagnetic radiation signal passes through an optical band pass filter within an image plane of a detector (fig. 2, 22a-b, 32a-b).

In regards to claim 21, the optical band pass filter enables differential detection of emission spectra (column 7, lines 13-15).

In regards to claim 22, the analysis comprises multiple passes through the processes of applying analytical filters and comparing the electromagnetic radiation signal emitted by the particle within the first interrogation volume to the electromagnetic radiation signal emitted by the particle within the second interrogation volume (as can be seen in figs. 4a-f).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ito et al. (USPN 5,760,900) in view of well known practices in the art.

In regards to claim 16, Ito discloses the method for enhancing the analysis of particle detection as discussed above. Ito is silent to the target particle being moved through the first interrogation volume and through the second interrogation volume with the population of different particles at a different velocity

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by a force selected from the group consisting of electro-kinetic force, centrifugal force, a magnetic force, an optical force, and any combination thereof. However, Ito is directed mainly to the detection of different separated particles in a flow stream. Therefore, any means for separating particles within a flow stream for detection would be suitable in Ito's method. The examiner takes Official notice that it is well known in the art to separate different particles in a flow stream by means of an electro-kinetic force with charge tags, centrifugal force with mass tags, a magnetic force with magnetic tags, or an optical force with optical tags. By separating particles by means of a electro-kinetic or centrifugal force, for example, additional information such as the identity of the sample based on the electrophoretic velocity or separation due to mass can be determined as well as the information determined by the light emitted by the particle. Therefore, it would have been obvious to one of ordinary skill at the time the invention was made to separate the different particles in Ito's flow stream by means of an electro-kinetic force, centrifugal force, a magnetic force, or an optical force in order to determine the identity of the sample based on the electrophoretic velocity or separation due to mass as well as the information determined by the light emitted by the particle.

In regards to claim 17, the target particle mobility is determined by an intrinsic parameter of the particle or an extrinsic parameter of the particle (in this case the mass or electrophoretic velocity).

In regards to claim 18, the extrinsic parameter of the target particle is provided by a label selected from the group consisting of a charge tag, a mass tag, a charge/mass tag, a magnetic tag, an optical tag, and any combination thereof (in the case of electro-kinetic or centrifugal, as discussed above, the tag could be a charge tag or a mass tag).

#### ***Additional Prior Art***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The prior art made of record Eisert et al. (USPN 4,548,499).

Eisert discloses a method for analysis of particles within first and second interrogation volumes.

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***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kara E Geisel whose telephone number is **571 272 2416**. The examiner can normally be reached on Monday through Friday, 8am to 4pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory J. Toatley, Jr. can be reached on **571 272 2800 ext. 77**. The fax phone number for the organization where this application or proceeding is assigned is **571 273 8300**.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

**/Kara E Geisel/  
Primary Examiner,  
Art Unit 2877**

November 24, 2009